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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
VAN DOREN, BETH	
ART UNIT	**PAPER NUMBER**
3623	

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/641,666	WINNARD ET AL.	
	Examiner	Art Unit	
	Beth Van Doren	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 31-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 31-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a non-final Office Action in response to the communications received 01/05/04. Claims 11 and 39 have been amended. Claims 14-30 have been cancelled. Claims 1-13 and 31-45 are now pending in this application.

Response to Amendment

2. Applicant's amendment to the abstract is sufficient to overcome the specification objection set forth in the previous office action.

3. Applicant's amendment to claims 11 and 39 and cancellation of claim 22 is sufficient to overcome the 35 USC § 112, second paragraph, rejections set forth in the previous office action.

Response to Arguments

4. Applicant's arguments, see paper 9, filed 01/05/04, with respect to the rejections of claims 1-13 and 31-45 under 35 USC § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new grounds of rejection is made in view of Tegethoff (U.S. 5,539,652) and DPL 4.0 (www.adainc.com).

Claim Objections

5. Claim 1 is objected to because it contains a grammatical error. Claim 1 recites "displaying a list of change drivers that is driving the engineering design change", which should more appropriately be --displaying a list of change drivers that are driving the engineering design change--. Correction is required.

6. Claim 5 is objected to because it contains a typographical error. Claim 5 recites "lowest warranty estimates for produce warranty of the product manufactured". For examination

purposes, the limitation has been construed as --lowest warranty estimates for product warranty of the product manufactured--. Correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Tegethoff (U.S. 5,539,652) .

8. As per claim 31, Tegethoff teaches a computer-implemented engineering change decision analysis system for analyzing an engineering design change in a product, comprising:

a graphical user interface operating on a computer to receive a selection of a change driver that is driving the engineering design change, general cost information associated with the engineering design change, and change driver-specific information associated with the selected change driver (See at least the abstract, figure 4, column 6, lines 5-13 and 30-67, column 7, lines 10-25, column 8, lines 50-55, column 11, lines 30-50 and 55-67, column 12, lines 5-35, and column 15, lines 1-5, 15-30, and 60-67, wherein change-driver selection, general cost information, and updated information concerning the change driver are obtained via a user interface);

an analysis logic program operating the computer to compute a cost associated with the engineering design change using the general cost information, a value associated with not implementing the engineering design change using the change driver-specific information, and

compare the computed cost and value and generate a recommendation of whether the engineering design change should be implemented in response to the comparison (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, column 16, lines 45-65, and column 22, lines 25-30, wherein a cost is computed through the simulation and a value is computed in the "what-if" scenario associated with not implementing the design change. The results of the simulation are a recommendation of whether or not to implement the design change).

9. As per claim 32, Tegethoff teaches a system further comprising receiving an identification of specific data in the general cost information or the change driver-specific information to vary, and the analysis logic program operating the computer to vary the specific data, and compare the computer cost score and value and generating an output in response to varying the specific data (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, column 16, lines 45-65, and column 22, lines 25-30, wherein a cost is computed through the simulation and a value is computed in the "what-if" scenario associated with not implementing the design change. The results of the simulation are a recommendation of whether or not to implement the design change).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 5, 7-13, 32-33, and 35-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tegethoff (U.S. 5,539,652) in view of DPL 4.0 (www.adainc.com).

11. As per claim 1, Tegethoff teaches a method of operating a computer to perform an engineering change decision analysis of an engineering design change in a product, comprising:

displaying a list of change drivers that are driving the engineering design change and receiving a selection of a change driver from a user (See at least the abstract, figure 4, column 6, lines 5-13 and 30-67, column 7, lines 10-25, column 8, lines 50-55, column 11, lines 30-50 and 55-67, column 12, lines 5-35, and column 15, lines 1-5, 15-30, and 60-67, wherein a user selects from a list a change driver that influences the engineering design change);

soliciting general cost information associated with the engineering design change (See at least the abstract, figure 4, column 6, lines 5-13 and 30-67, column 7, lines 10-25, column 8, lines 50-55, column 11, lines 30-50 and 55-67, column 12, lines 5-35, and column 15, lines 1-5, 15-30, and 60-67, wherein general cost information is stored in the system, as supplied by an expert, designer, engineer, etc.);

displaying a set of questions soliciting change driver-specific information associated with the selected change driver (See at least the abstract, figure 4, column 6, lines 5-13 and 30-67, column 7, lines 10-25, column 8, lines 50-55, column 11, lines 30-50 and 55-67, column 12, lines 5-35, and column 15, lines 1-5, 15-30, and 60-67, wherein a set of inquires are displayed for updated information concerning the change driver);

receiving answers to the set of general cost questions from the stored user information (See at least the figure 4, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines

20-25, column 8, lines 50-55, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, column 16, lines 45-65, and column 22, lines 25-30, wherein answers to cost issues are received from information stored in the databases of the system);

receiving answers to the set of change driver-specific questions from the user (See at least the figure 4, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 8, lines 50-55, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, and column 16, lines 45-65, wherein answers are received about change-driver specific information) ;

computing a cost associated with the engineering design change using the general cost answers (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, column 16, lines 45-65, and column 22, lines 25-30, wherein a cost is computed through the simulation);

computing a value associated with not implementing the engineering design change using the change driver-specific answers (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, and column 16, lines 45-65, wherein a value is computed in the "what-if" scenario associated with not implementing the design change); and

comparing the computed cost and value and generating a recommendation of whether the engineering design change should be implemented in response to the comparison (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, and column 16, lines 45-65, wherein the simulation recommends whether or not to implement the design change).

However, Tegethoff does not expressly disclose displaying a set of questions soliciting general cost information and receiving answers to these questions from the user.

DPL 4.0 discloses displaying a set of questions soliciting general cost information and receiving answers to these questions from the user (See pages 3, 11-14, 17, 24, and 36-37, which discuss displaying inquiries requires cost information input and receiving said inputs from the user).

Tegethoff discloses a simulation tool integrated with computer aided design tools to allow for continuous engineering of a product from design through manufacturing and sale. Tegethoff discloses that users input information into the tool. First, experts and engineers enter information into databases of the system that includes cost information related to the components of the engineered products, this cost information being used when a user selects a component or assembly for simulation to occur. Second, at the time of the needed simulation, users select change drivers and input change driver-specific information. The simulation of Tegethoff results in the communication of results that guide the user in choosing to implement the engineering design change or not. DPL 4.0 also discloses a tool that receives data about a manufacturing situation, runs simulations on the data, and communicates results that guide the user in choosing to implement the engineering design change or not. It would have been obvious to one of ordinary skill in the art at the time of the invention to display cost questions soliciting general cost information and receiving answers to these questions from the user in order to increase the accuracy of making recommendations for a user by considering values provided by the user at the time the simulation is performed. DPL 4.0 discusses using decision methodologies to

generate complete, comprehensive, and focused analyses for business purposes in order to take into account all the alternatives on at least page 22.

12. As per claim 2, Tegethoff discloses a method wherein computing the cost associated with the engineering design change comprises:

computing a cost variance associated with warranty of the product manufactured with the engineering design change (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, column 16, lines 45-65, and column 22, lines 25-30, wherein a cost difference is computed associated with the warranty of product);

computing a cost variance associated with producing the product manufactured with the engineering design change (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, column 16, lines 45-65, and column 22, lines 25-30, wherein a cost difference is determined for producing the product); and

summing the warranty cost variance with the production cost (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, column 16, lines 45-65, and column 22, lines 25-30, wherein a total cost is computed through the simulation).

13. As per claims 5, 7, 8, 9, and 12, Tegethoff teaches soliciting general cost information associated with the engineering design change and:

As per claim 5, computing warranty variance estimates for product warranty of the product manufactured with the engineering design change and respective probabilities;

As per claim 7, computing cost variance estimates for manufacturing the product with the engineering design change and respective probabilities;

As per claim 8, computing tooling cost variance estimates for product warranty of the product manufactured with the engineering design change and respective probabilities;

As per claim 9, computing incremental piece cost variance estimates for product warranty of the product manufactured with the engineering design change and respective probabilities;

As per claim 12, computing warranty variance estimates for product warranty of the product manufactured without the engineering design change and respective probabilities;

(See at least the abstract, figures 4, 8, 9, and 12, column 6, lines 5-13 and 30-67, column 7, lines 10-25, column 8, lines 50-55, column 11, lines 30-50 and 55-67, column 12, lines 5-35, and column 15, lines 1-5, 15-30, and 60-67, wherein general cost information is stored in the system, as supplied by an expert, designer, engineer, etc. This cost information is used to compute a cost difference associated with the warranty of product, compute a cost difference associated with the manufacturing/tooling the product, a cost difference associated with the components and the combinations thereof, and the likelihood of all these occurrences. See column 7, lines 1-25, wherein the what-if analysis considers the cost differences by incremental components).

However, Tegethoff does not expressly disclose displaying a set of general cost questions requesting highest, best, and lowest cost variance estimates and receiving answers to these questions.

DPL 4.0 teaches displaying questions and receiving a highest/best and a lowest cost variance estimate for producing/manufacturing the product with the engineering design change,

the variance of incremental pieces, and also teaches branch nodes and probabilities (See at least pages 1, 4, 12, and 36-37, which discusses a best and lowest cost change assumption for producing the product, each with a .5 probability of occurrence. More than 2 branches can be used in more complex situations).

Both Tegethoff and DPL 4.0 discuss the analysis of decisions of a user with respect to an engineered product using a computer-implemented methodology that takes in account the input of a user to compare options, as well as considering the weight of the factor. Examiner points out that the terms tooling, warranty, incremental pieces, etc. are non-functional descriptive data that do not have any structural or functional affect on the claimed method. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include displaying questions and receiving input for each of the best, lowest, and highest estimates of warranty cost variance in order to increase the efficiency of the methodology in making accurate recommendations for a user by considering a more complex web of values when making the decision. DPL 4.0 discusses using decision methodologies to generate complete, comprehensive, and focused analyses for business purposes in order to take into account all the alternatives on at least page 22.

14. As per claim 10, Tegethoff teaches a method wherein displaying a list of change drivers comprises displaying a list including management directed, customer satisfaction, quality, cost, feasibility, and missed objective change drivers (See at least the abstract, figure 4, column 6, lines 5-13 and 30-67, column 7, lines 10-25, column 8, lines 50-55, column 11, lines 30-50 and 55-67, column 12, lines 5-35, and column 15, lines 1-5, 15-30, and 60-67, wherein the tool includes many different pieces that drive the change of the product).

15. As per claim 11, Tegethoff teaches a method wherein displaying a set of questions soliciting change driver-specific information comprises displaying a question regarding a late engineering design change (See at least the abstract, figure 4, column 6, lines 5-13 and 30-67, column 7, lines 10-25, column 8, lines 50-55, column 11, lines 30-50 and 55-67, column 12, lines 5-35, and column 15, lines 1-5, 15-30, and 60-67, wherein required inputs of the user include inputs concerning late engineering design changes).

However, Tegethoff does not expressly disclose requesting whether a required condition will be met by implementing a late engineering design change.

Tegethoff discloses a simulation tool that allows for continuous engineering of a product from design through manufacturing and sale. It is well known in manufacturing that required conditions exist, such as industry standards that must be met or specific deadlines. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a question about required conditions associated with late engineering design changes in the questions of Tegethoff in order to more accurately assess whether or not to implement the product by considering a more comprehensive list of factors.

16. As per claim 13, Tegethoff discloses a method wherein displaying a set of questions soliciting change driver-specific information comprises displaying a question requesting a retail value of the customers who would purchase the product despite the lack of implementing the engineering design change (See at least column 12, lines 5-35 and 44-67, wherein the simulation asks questions regarding market analysis and the retail value of the product in the current market).

However, Tegethoff does not expressly disclose requesting a percentage of customers who purchase the product despite the lack of implementing the engineering design change.

Tegethoff discloses receiving input regarding the current market and the current design of the product. It is well known in market analysis to consider percentages of customers when assessing the retail value of a product. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention to include percentage associated with the market analysis of Tegethoff in order to make more accurate recommendations for a user by considering a more complex web of values when making the decision.

17. As per claims 33, 35-38, 40-41, and 43 claims 33, 35-38, 40-41, and 43 are system implementations of the method of claims 5, 7-10, 12-13, and 2, respectively. Therefore, claims 33, 35-38, 40-41, and 43 are rejected using the same art and rationale relied upon in the rejections of claims 5, 7-10, 12-13, and 2, respectively.

18. As per claim 39, Tegethoff teaches a system wherein the graphical user interface is operable to receive change driver-specific information comprising information regarding a late engineering design change and wherein the analysis logic program generating a recommendation of not implementing the engineering design change in response to the indication (See at least the abstract, figure 4, column 6, lines 5-13 and 30-67, column 7, lines 10-25, column 8, lines 50-55, column 11, lines 30-50 and 55-67, column 12, lines 5-35, and column 15, lines 1-5, 15-30, and 60-67, wherein information is received concerning late engineering design changes and recommendations are made).

However, Tegethoff does not expressly disclose whether a required condition will be met by implementing a late engineering design change and generating a recommendation of not implementing the engineering design based on the required condition will not be met.

Tegethoff discloses a simulation tool that allows for continuous engineering of a product from design through manufacturing and sale. It is well known in manufacturing that required conditions exist, such as industry standards that must be met or specific deadlines. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a question about required conditions associated with late engineering design changes in the questions of Tegethoff in order to more accurately assess whether or not to implement the product by considering a more comprehensive list of factors.

19. As per claim 42, Tegethoff discloses a system wherein the graphical user interface is operable to receive change driver-specific information comprises receiving a probability for addressing feasibility issues by changing assembly process instead of implementing the engineering design change (See at least the abstract, figures 4 and 12, column 5, lines 55-67, column 6, lines 5-13 and 30-67, column 7, lines 20-25, column 12, lines 5-35, column 15, lines 1-5, 15-30, and 60-67, column 16, lines 45-65, and column 22, lines 25-30, wherein the change driver-specific information includes receiving likelihood information about changing the assembly process).

However, Tegethoff does not disclose adding manpower and assembly time to the assembly process.

Tegethoff discloses a simulation tool that determines if there are improvements in the assembly process that can be implemented. Manpower and assembly time are well known

components of an assembly process. It would have been obvious to one of ordinary skill in the art at the time of the invention to change the assembly process of Tegethoff by adding manpower and assembly time in order to more efficiently aid designers in improving manufacturability of a product by allowing the designers to analyze tradeoffs in a cost effective manner. See column 5, lines 55-67, and column 6, lines 1-15.

Allowable Subject Matter

20. Claims 3, 4, 6, 34, 44, 45 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Willis et al. (U.S. 5,515,269) discloses configuring an end product.

Shannon (U.S. 6,088,678) teaches a software simulation tool that calculates schedule and cost in producing an end product.

Mukherjee et al. (U.S. 5,311,424) discloses tracking product configurations to define an end product.

Cornett et al. (U.S. 5,216,612) discloses an engineering change management system.

Turnbull (U.S. 5,208,765) teaches a tool for product development.

Mukherjee et al. (EP 0 520 923 A2) discloses tracking product configurations.

Orr et al. (EP 0 473 522 A2) teaches monitoring engineering and manufacturing changes.

"Gartner offers Web-based analysis Tool" (http://gartner11.gartnerweb.com/5_about/press_room/pr20000403b.html) teaches a web-based analysis tool to estimate the impact of process and technology innovations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beth Van Doren whose telephone number is (703) 305-3882. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (703) 305-9643. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bvd
March 4, 2004

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